

## Adopted 10-6-10

<b>SC K-12.4 Comprehensive Science Standard – Earth and Space Sciences</b>				
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.				
<b>4. Earth and Space Sciences</b>	<b>Grade Band Standards</b>			
	<b>K-2</b>	<b>3-5</b>	<b>6-8</b>	<b>9-12</b>
<b>1. Earth in Space</b>	SC2.4.1 Students will observe and identify objects of the sky.	SC5.4.1 Students will observe and describe characteristics, patterns, and changes in the sky.	SC8.4.1 Students will investigate and describe Earth and the solar system.	SC12.4.1 Students will investigate and describe the known universe.
Objects in the Sky and Universe	SC2.4.1.a Identify objects in the sky (the Sun, the Moon, the stars) and when they are observable	SC5.4.1.a Recognize that the observed shape of the Moon changes from day to day during a one month period	SC8.4.1.a Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)	SC12.4.1.a Describe the formation of the universe using the Big Bang Theory  SC12.4.1.b Recognize that stars, like the Sun, transform matter into energy by nuclear reactions which leads to the formation of other elements  SC12.4.1.c Describe stellar evolution
Motion of Objects in the Solar System	SC2.4.1.b Identify objects that appear to move in the sky (the Sun, the Moon, stars)	SC5.4.1.b Recognize the motion of objects in the sky (the Sun, the Moon, stars) change over time in recognizable patterns	SC8.4.1.b Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons	
Gravitational Effects			SC8.4.1.c Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system	

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<b>2. Earth Structures and Processes</b>	SC2.4.2 Students will observe, identify, and describe characteristics of Earth's materials.	SC5.4.2 Students will observe and describe Earth's materials, structure, and processes.	SC8.4.2 Students will investigate and describe Earth's structure, systems, and processes.	SC12.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.
Properties of Earth Materials	SC2.4.2.a Describe Earth materials (sand, soil, rocks, water)	SC5.4.2.a Describe the characteristics of rocks, minerals, soil, water, and the atmosphere	SC8.4.2.a Describe the layers of Earth (core, mantle, crust, atmosphere)	SC12.4.2.a Recognize how Earth materials move through geochemical cycles (carbon, nitrogen, oxygen) resulting in chemical and physical changes in matter
Earth's Processes		SC5.4.2.b Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface	SC8.4.2.b Describe the physical composition of soil  SC8.4.2.c Describe the mixture of gases in Earth's atmosphere and how the atmosphere's properties change at different elevations  SC8.4.2.d Describe evidence of Earth's magnetic field	SC12.4.2.b Describe how heat convection in the mantle propels the plates comprising Earth's surface across the face of the globe (plate tectonics)
Use of Earth Materials	SC2.4.2.b Recognize ways in which individuals and families can conserve Earth's resources by reducing, reusing, and recycling	SC5.4.2.c Identify how Earth materials are used (fuels, building materials, sustaining plant life)	SC8.4.2.e Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface  SC8.4.2.f Describe the rock cycle  SC8.4.2.g Describe the water cycle (evaporation, condensation, precipitation)	SC12.4.2.c Evaluate the impact of human activity and natural causes on Earth's resources (groundwater, rivers, land, fossil fuels)

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3. Energy in Earth's Systems	SC2.4.3 Students will observe simple patterns of change on Earth.	SC5.4.3 Students will observe and describe the effects of energy changes on Earth.	SC8.4.3 Students will investigate and describe energy in Earth's systems.	SC12.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.
Energy Sources	SC2.4.3.a Observe that the Sun provides heat and light	SC5.4.3.a Describe the Sun's warming effect on the land and water	SC8.4.3.a Describe how energy from the Sun influences the atmosphere and provides energy for plant growth	SC12.4.3.a Describe how radiation, conduction, and convection transfer heat in Earth's systems
Weather and Climate	SC2.4.3.b Observe and describe simple daily changes in weather	SC5.4.3.b Observe, measure, and record changes in weather (temperature, wind direction and speed, precipitation)	SC8.4.3.b Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses)	SC12.4.3.b Identify internal and external sources of heat energy in Earth's systems
	SC2.4.3.c Describe simple seasonal weather indicators and how they impact student choices (activities, clothing)	SC5.4.3.c Recognize the difference between weather, climate, and seasons	SC8.4.3.c Describe atmospheric movements that influence weather and climate (air masses, jet stream)	SC12.4.3.c Compare and contrast benefits of renewable and nonrenewable energy sources
				SC12.4.3.d Describe natural influences (Earth's rotation, mountain ranges, oceans, differential heating) on global climate

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4. Earth's History		SC5.4.4 Students will describe changes in Earth.	SC8.4.4 Students will use evidence to draw conclusions about changes in Earth.	SC12.4.4 Students will explain the history and evolution of Earth.
Past/Present Earth		SC5.4.4.a Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface	SC8.4.4.a Recognize that Earth processes we see today are similar to those that occurred in the past (uniformity of processes)  SC8.4.4.b Describe how environmental conditions have changed through use of the fossil record	SC12.4.4.a Recognize that in any sequence of sediments or rocks that has not been overturned, the youngest sediments or rocks are at the top of the sequence and the oldest are at the bottom (law of superposition)  SC12.4.4.b Interpret Earth's history by observing rock sequences, using fossils to correlate the sequences at various locations, and using data from radioactive dating methods  SC12.4.4.c Compare and contrast the physical and biological differences of the early Earth with the planet we live on today